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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,635	02/16/2005	Hiromitsu Takeda	050043	1491

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EXAMINER

ZACHARIA, RAMSEY E

ART UNIT	PAPER NUMBER
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1773

MAIL DATE	DELIVERY MODE
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06/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,635

Applicant(s)

TAKEDA, HIROMITSU

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. The phrase having been formed like a single film or board" in claims 1 and 6 renders claims 1-3 and 6 indefinite because the meaning of the phrase is unclear. Does this mean that the heat shielding layer is of a monolayer construction? Or that it was produced using the same equipment and/or operating conditions as single film or board?

Claim Rejections - 35 USC § 103

5. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of Friedman et al. (US 2003/0162028)

Fisher teaches an infrared absorbing resin comprising lanthanum hexaboride particles alone or in combination with doped tin oxide (paragraph 0015). The doped tin oxide may be doped with antimony (paragraph 0016). The resin may be polyvinyl butyral or other polymers

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which may be used to form interlayer sheets of glass laminates (paragraph 0021). The glass layers read on the matrix material of instant claim 6.

While Fisher does not disclose the concentration of particles in g/m^2 , the concentrations disclosed by Fisher (i.e. lanthanum hexaboride of about 0.001-0.1 wt% and tin oxide of about 0.05-2.0 wt% - see paragraphs 0016-0017) should at least overlap the ranges recited in instant claims 1 and 6.

Alternatively, Fisher demonstrate that the concentrations of lanthanum hexaboride and tin oxide are variables that affect the degree of infrared absorbance of the resulting sheet (e.g. see Figure 2 and the Examples - particularly Example 6). That is, the concentration of particles is a results effective variable. Therefore, in the event that the concentration of particles is not inherently within the ranges recited in instant claim 4, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the concentration of particles, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

Fisher does not teach the use of a fluorine type resin as the interlayer resin. However, Fisher does teach that other resins which are conventionally used as interlayers may be employed.

Friedman et al. teach that polyvinyl butyral and fluoropolymers (i.e. fluorine type resin) may be used as interlayers in glazing laminates (paragraph 0002).

Friedman et al. show that polyvinyl butyral and fluoropolymers are known in the art as functionally equivalent polymers for forming glazing interlayers. Therefore, because these two polymers were art-recognized equivalents at the time the invention was made, one of ordinary

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skill in the art would have found it obvious to substitute a fluoropolymer for the polyvinyl butyral of Fisher, particularly since Fisher explicitly teaches that other interlayer polymers may be used in place of polyvinyl butyral.

Regarding claims 2 and 3, the limitations of these claims are taken to be met because the amount of radiation transmitted through a material is a function of the composition of the material. Since Fisher taken in view of Friedman et al. teach a sheet formed of the same resin (fluorine type resin), containing the same heat shielding particles (lanthanum hexaboride or antimony-doped tin oxide), in the overlapping concentrations, the absorption characteristics of the resulting sheet should fall within the ranges recited in instant claims 2 and 3.

6. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kase et al. (US 5,925,453) in view of Kunitatsu et al. (US 5,807,511).

Kase et al. teach a film to be adhered to a window that absorbs infrared rays (column 1, lines 6-8). The film comprises an infrared absorbing layer formed of a transparent base film in which an infrared absorbing agent is incorporated (column 2, lines 35-38). The infrared absorbing agent may be inorganic, such as tin oxide or antimony oxide (column 2, lines 44-49). The transparent base resin may be a vinylidene fluoride resin, a vinyl fluoride resin, or a fluorocarbon resin (column 3, lines 10-26). The concentration of infrared absorbing agent is about 0.5-20 g/m² (column 2, lines 62-63). The visible light transmittance is in the range of about 10-80% and the infrared absorbancy is about 80% or more (claims 2 and 3).

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Kase et al. do not teach that the infrared absorbing agent is antimony doped tin oxide. However, Kase et al. do teach the use of inorganic agents and both tin oxide and antimony oxide are cited as suitable examples.

Kunimatsu et al. teach an infrared ray screening material which selectively cuts off near infrared rays while transmitting visible light (column 1, lines 8-12). The material comprises binder and an oxide powder (column 2, lines 30-35). The binder may be a fluorine resin (column 2, lines 36-44). The oxide powder may be antimony-doped tin oxide (column 3, lines 5-8).

One skilled in the art would be motivated to use the antimony-doped tin oxide powder of Kunimatsu et al. as the infrared absorbing agent of Kase et al. so that, since it not only absorbs infrared rays but also transmits visible light, the result infrared absorbing layer would have minimal impact on the visible light transmittance.

Regarding claims 2 and 3, the limitations of these claims are taken to be met because the amount of radiation transmitted through a material is a function of the composition of the material. Since Kase et al. taken in view of Kunimatsu et al. teach a sheet formed of the same resin (fluorine type resin), containing the same heat shielding particles (antimony-doped tin oxide), in the same concentration, the absorption characteristics of the resulting sheet should fall within the ranges recited in instant claims 2 and 3.

Response to Arguments

7. Applicant's arguments with respect to claims 1-3 and 6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ramsey Zacharia
Primary Examiner
Tech Center 1700